

PLATA

*PLA*taforma Tecnológica Argentina

Argentinean Technology Platform

Vision 2020

Latin American Technology Platform

www.latin-american-technology-platforms.eu

Version 1.0

November 2010

Table of content

1. Introduction	3
2. Our Vision for Argentina-2020 in the Future Internet field.....	4

1.Introduction

Internet is already an essential part of our society, each day more present in our daily life, it has changed our life but it has the potential to transform it even more. We are foreseen a new internet where Immersive, 3D applications will be protagonist. In this new scenario, the differences between real world and the virtual world accessed by internet will not be clear. We shall have access to products and information that are not close to where we live and, perhaps more important, we shall be able to experiment a different way of life. Internet demands are also continuously increasing, and research is becoming essential to achieve necessary improvements to satisfy these demands in terms of ubiquity, reliability, mobility, efficiency or security.

Nonetheless, the Future Internet is not a prediction but a goal to be attained in response to the current limits of the Internet to meet complexity and sufficient quality standards. And the stakeholders of this research effort are responsible for enabling the technologies, the standards and the methodologies. From the technical point of view, this future Internet should be global, ubiquitous, accessible, trustable, sustainable, omni-media, scalable, adaptable, and personalized, and SatComs will play an important role in achieving these objectives.

It is time of thinking in a Future Internet. This document aims at contributing to give a coherent vision of the Argentine ICT actors about Internet in the upcoming future by the provision of new ideas, convergence between the technical and non-technical perspectives, providing recommendations on policies and roadmaps that could foster the active participation of the local industry, academia and a broad scope of organizations in the development of the infrastructures and services for the future networked society.

The main objective of the Argentine Technology Platform is to foster and promote a consistent approach to R&D activities in Argentina in collaboration with the European Technology Platforms and having the Seventh Framework Programme as the reference basis for R&D in the Future Internet field.

The Argentine Technology Platform gathers most of the relevant stakeholders in Argentina in the field of Future Internet and from a R&D perspective and as a consequence this document represents a key milestone in the promotion of R&D activities in cooperation between Argentina and the EU.

The Argentine Vision-2020 in Future Internet provides an analysis of the technological panorama of the country and beyond, and as consequence of this analysis a set of recommendations have been produced in order to guide the research priorities for the medium and long term. Argentine Technology Platform in all its future activities, such as the production of the SRA, and the implementation of the SRA through R&D projects.

Julian Seseña

Rose Vision

FIRST Project coordinator

Our Vision for Argentina-2020 in the Future

Internet field

Argentina is one of the important actors in Latin America regarding ICT. There are several Future Internet areas that show potential in Argentina. In order to identify them is important to take a look at the public policies and vision for R&D. The main governmental institution is the Science and technology Ministry (MinCyT) which is in charge of the design of R&D policies and funds in the country.

The MinCyT has a Social & Productive Innovation Programme (since 2009) in which a specific point aims to boost R&D&i activities of high quality, especially on ICT. The goal is to transfer knowledge to the productive sector by enhancing the bounds between researchers (both public and private R&D centres).

In September 2009, MinCyT published The ICT-Prospective-Project 2020 White Book¹, an effort that gathered more than 150 ICT stakeholders, who sought to identify application, technology and transverse areas that should be promoted in Argentina in the ICT area in Argentina in the coming years.

This ICT-Prospective takes the following vision outlined in the Strategic Plan 2004-2014, within the framework of Blue and White Book:

"Turning Argentina in a relevant actor, as a peripheral country, in the SSI world market." It should be clarified that, despite the fact that the Forum discussed SSI, many of the measures include ICT as a whole or at least partially. In other words, the vision could be expanded to ICT in general and could be redefined as follows:

"Turning Argentina in a relevant actor, as a peripheral country, in the ICT world market".

In this prospective work, it is suggested that the main challenge for Argentina, in terms of Science and Technology, is to change the R&D and innovation model. This change is an unavoidable precondition to overcome a delay of 50 years in the next 20 years. This transformation can be summarized as the passage from linear to nonlinear R&D paradigm. One of the necessary conditions to achieve this is to establish, prioritize and support multidisciplinary R&D programs oriented to the selected specializations. Not from the "scientific offer" but mainly from the demand for knowledge and solutions required by the specializations.

ICT industry and more specifically in hardware and semiconductors differs from other manufacturing industries in that production workers make up a relatively small proportion of the workforce. Technological innovation characterizes this industry more than most others. The extraordinarily dynamic scenario of innovation requires a high proportion of engineers and other technical workers who carry out extensive research and development (R&D)².

The Asian region had firmly established as a site for assembly of electronics products and components and more recently as a designer of new products. These countries, early identify the importance of the global ICT markets and construct a national development project reaching a resounding success. Nonetheless, it would be useless replicate their policies now because the

¹ MINCYT (2009) Libro Blanco de la Prospectiva TIC: Proyecto 2020. Ministerio de Ciencia, Tecnología e Innovación Productiva de la Nación, Buenos Aires.

² United States Department of Labor. - U.S. Bureau of Labor Statistics. <http://www.bls.gov/oco/cg/cgs010.htm>.

window of opportunity of which they took advantage is already mid-way along its life cycle and this region is far ahead in its accumulation in experience for technology production. In spite of this, ICT's fabrication objective would not be abandoned, but the bulk of it would be strengthened in those areas that target high-value low-volume niches, taking advantage of the hyper-segmentation of markets that characterizes the current globalization wave ³.

The main technology areas identified are:

Software Engineering

- Applications and Software creation with other elements
- Ility Engineering
- Semantic of Contents
- Digital integration of data and information
- New trends in engineering requirements
- Complex Systems Architecture
- Hardware-software co- design.
- Digital TV. Networked home integration, value-added applications.

Signals

- Multimedia communication within wireless mobile networks
- Customized broadband services and context awared through high quality optic fiber links
- Broadband seamless mobile Internet access.
- Energy efficient system design.
- Dirty RF technologies for low cost-high performance communications.

Image Technologies

- Object segmentation and quantification in images
- Real time automatic identification and interpretation of objects in images and videos
- Smart methods for tracking sequences in videos
- Illumination models and realism

Embedded systems

- Multi-Modal architectures and computational systems.
- Complex Systems integration.
- Real time embedded systems, architectures and software.
- Smart systems integration. Applications in wide areas monitoring and control; early warning systems; security; health care of mobile patients; power systems monitoring; agriculture and livestock monitoring.
- Agro-ICT technologies for equipment design and automation.
- Biotechnologies support and applications.

Microelectronics and Nanoelectronics

- Design of integrated systems, software y services for design.
- Low Power SOC and SOP
- Applications in Biomedicine, Environmental monitoring, agriculture and energy saving.

In transverse areas, there were identified critical areas where work is needed to support the development of technologies: human resource training, promoting innovation, encouraging the value added development in industry and the Diaspora (how a process of "brain drain" can be a

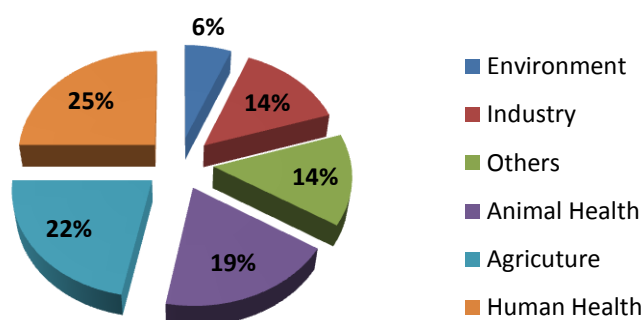
³ Perez, Carlota (2002), *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*, Cheltenham, Elgar.

gain for the country, using the ability of Argentine foreign experts to guide the training of human resources and improve the profile of productive specialization in the country).

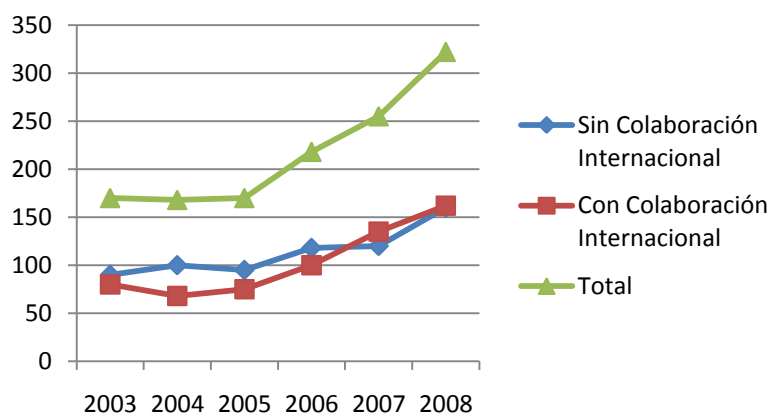
In addition to this, the MinCyT has officially defined three main areas of priority and interest for specific funds. This official announcement is an important validation for the following sectors:

1. Biotechnology
2. Nanotechnology
3. ICT

Biotechnology is a key sector for a country like Argentina that presents a strong agricultural sector. The main areas developed in the country in this field are the following (Source: MinCyT):



Regarding Nanotechnology, it is important to remark the evolution of the academic sector. For example, the following is the evolution of the number of publications of Argentinean researchers (Source MinCyT):



The ICT sector has turned into one of the most important sector for the MinCyT because of the spillover effect that improve other industries competitiveness. Also it represents a tool to create added value and more qualified jobs through the population. The ICT sector in Argentina showed a total spend almost US\$ 12.000 millions in 2008, showing an annual growth of 28% and reaching a 4,4% of the Gross Domestic Product. Inside the ICT sector, almost 70% is focused on Telecommunications. Given the fact that is a quite new sector is important to remark that 1,4% of the total employment is created by the ICT industry.

Argentinean society challenges that attract major research and development efforts are health, education, security and reliability and the agro-food value chain. In these ICT application areas, Argentina has potential, knowledge and experience to become a major player, as a peripheral country, in the medium to long term.

All these specific areas have two main objectives: *Improving the productive process for Industries and improving the life quality of the population.* In order to achieve these goals is of major importance to coordinate the R&D activities and projects with the different needs of the society and the industry. Then, the *Argentinean Technology Platform should work as a support point in which these needs and the respective R&D actors will find a common place to interact properly.* This interaction will be focused on *promoting R&D projects together with the European Union organizations in the field of Future Internet.*

The Technology Platform is the methodology used to create synergy between industry and academia (it is a primary goal to synchronize the developments of the academic sector with the evolution of the productive sector's needs) to increase the country's competitiveness driven by R&D international cooperation projects.

Investing in research is a bet on the future because the supply will be comprised of higher value-added products that satisfactorily meet the demand, FP7 projects are a suitable tool for implementing long-term research. Also, international cooperation should be promoted in those fields previously identified as strategic for Argentinean industry; with the aim of enhancing these areas.

In the long term, it is expected that efforts in R&D will increase productivity and competitiveness along with a more social and territorial cohesion. In order to achieve this last objective it is important to work on the R&D application areas of ICT.